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CONCENTRATING IN PATENT, TRADEMARK & COPYRIGHT LAW

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/799,095  
Filing Date: March 12, 2004  
Appellant(s): MAURER ET AL.  
Attorney Docket No. 1062-033

\_\_\_\_\_  
Christopher Voci  
For Appellant

**REPLY BRIEF**

This is in response to the Examiner's Answer dated July 11, 2006.

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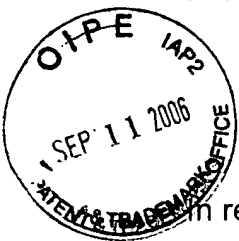
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Practitioner's Docket No. 1062-033 (63264)

**PATENT**



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Myron J. Maurer

Application No.: 10/799,095

Group No.: 3683

Filed: March 12, 2003

Examiner: Rodriguez, Pamela

For: IMPACT ABSORPTION STRUCTURE

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Reply Brief**

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### **Status of the Claims**

Claims 1, 3-10, 13-29, 32 and 33 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,852,704 to Brockenbrough et al. ("Brockenbrough") in view of U.S. Patent No. 5,011,642 to Welygan et al. ("Welygan").

**Grounds of Rejection to be Reviewed on Appeal**

Whether claims 1, 28 and 29 are patentable under 35 U.S.C. §103 over Brockenbrough in view of Welygan.

Whether claims 9, 17 and 23 are patentable under 35 U.S.C. §103 over Brockenbrough in view of Welygan.

Whether claims 7, 15 and 21 are patentable under 35 U.S.C. §103 over Brockenbrough in view of Welygan.

## Argument

### Rejection under 35 U.S.C. §103(a) over U.S. Patent No. 4,852,704 to Brockenbrough et al. in view of U.S. Patent No. 5,011,642 to Welygan et al.

In the Examiner's Answer, the Examiner clarified the rejection by indicating that the rejection was based on both U.S. Patent No. 4,853,704 to Brockenbrough et al. ("Brockenbrough") and U.S. Patent No. 5,011,642 to Welygan et al. (Welygan"). Previously, it was not clear whether the rejection was based Brockenbrough alone or the combination of the two references. Thus, the Applicants address this clarified rejection in this reply brief.

Also, in the Examiner's Answer, for the first time the Examiner set forth the reasoning of the rejection on a claim-by-claim basis. Previously, the Examiner gave a rejection to the group containing claims 1-16, 18-22 and 29-33 and to the group containing claims 17 and 23-28. The Examiner made new arguments concerning the hinge aspect, the differing composition aspect and the use of friction aspect of the claims. Thus, the Applicants address these new arguments in this reply brief

### The Hinge

Still at issue is whether Brockenbrough discloses the hinge element of claims 1, 28 and 29.

The Examiner acknowledged that Welygan did not disclose a hinge and thus only the disclosure of Brockenbrough is at issue. The Examiner maintains Brockenbrough discloses a hinge in "that bracket 17 is readable as a hinge in that it acts to provide a bending/hinging point for each of the corrugations 14 and 16". Examiner's Answer, pages 4-5, bridging paragraph.

The Examiner then asserts that "the word 'hinge', bracket 17 of Brockenbrough et al does to connect/hinge strips and 16 together. The ends of strips 14 and 16 are both attached to bracket 17 and bend at these attachment points." However, the Examiner provides no factual support from Brockenbrough that illustrates that bracket 17 acts as a hinge or that the bracket 17 bends at the attachment points. Nor does the Examiner provide any factual support from outside Brockenbrough that would support the position that bracket 17 is a hinge or permits bending. The Examiner's position is unsupported and should not be allowed to stand.

Not only is the Examiner's position unsupported, but it is also contradicted by the disclosure of Brockenbrough and the common understanding of the term bracket.

Brockenbrough states:

According to this invention, an energy absorption and barrier device is provided for automotive vehicle, which device includes a plurality of elongated sheet metal strips mounted in stacked relation and having sinusoidal shapes and means for securing opposed ends of the sheet metal strips together and to a support surface of the vehicle. (Column 2, lines 9-15)(emphasis added).

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Then adhesive is applied to a pair of brackets and the brackets are crimped so as to fasten the ends of the strips together. The crimped area insures good lap shear performance of the adhesive during rapid force loading. (Column 5, lines 35-39)(emphasis added).

The quotes state that the brackets are used to secure together the ends of the strips, with the second quote making clear that the combination with an adhesive insures that the ends of the strips stay fastened together. The disclosure of Brockenbrough contradicts the Examiner's position that the bracket can function as a hinge.

As quoted in the Appeal Brief, Brockenbrough also states that:

a pair of brackets 17 (FIG. 1) and 18 (FIG. 2) for securing opposed narrow ends of the strips together. The brackets are secured to vertical posts of a vehicle door one of which is partially illustrated at 22 in FIG. 1. (Column 3, line 1-5)(emphasis added).

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Brackets 17 and 18 are stiffer and generally thicker than the strips. Tabs 34 and 36 of each bracket are bent over as shown in FIG. 3a so as to secure the ends of the strips. (Column 3, lines 35-38)(emphasis added).

As acknowledged by Brockenbrough, the bracket secures two strips of material together and to posts of the vehicle door. Thus, the disclosure Brockenbrough factually contradicts the Examiner.

Moreover, the second quote from Brockenbrough further factually contradicts the Examiner. Brockenbrough discloses that the bracket is stiffer and thicker than the strips. A stiffer and thicker bracket is inconsistent with the Examiner's position that the bracket acts as a hinge. Thus, not only is the Examiner's position not supported, it is contradicted by the disclosure of Brockenbrough.

Lastly, the figures and their brief descriptions contradict the Examiner's position. Even though Fig. 1 depicts a single bracket, the brief description of the figure shows that the figure is only a partial view of the device. Figure 2, which shows two brackets and is described as a full-length of the device, depicts the actual device contemplated by Brockenbrough. With two brackets holding the ends of the strips, neither of the brackets could function as a hinge, thus contradicting the Examiner's position.

The Examiner's position on this point is also contradicted by the common understanding of the terms bracket and hinge. This distinction between bracket and hinge can be seen by comparing dictionary definitions.

Bracket:

1 : an overhanging member that projects from a structure (as a wall) and is usually designed to support a vertical load or to strengthen an angle;

2 : a fixture (as for holding a lamp) projecting from a wall or column.

<http://www.m-w.com/dictionary/bracket>

Hinge:

1 a : a jointed or flexible device on which a door, lid, or other swinging part turns  
b : a flexible ligamentous joint c : a small piece of thin gummed paper used in fastening a postage stamp in an album.

<http://www.m-w.com/dictionary/hinge>

As can be seen, the definition of bracket relates to supporting, strengthening or holding something in place while the definition of hinge relates to something flexible that allows a part to swing. The common understanding thus contradicts the Examiner's position.

Thus, the Examiner's position is not supported by the disclosure of Brockenbrough and contradicted by the disclosure of Brockenbrough and from the common understanding. A skilled artisan would not understand the bracket 17 to be the same as the hinge in the claims.

The error in the Examiner's reasoning is magnified when applied to the method claims 28 and 29. Nothing in Brockenbrough suggests that the bracket 17 may be actuated to nest the surface features within one another as claimed in claim 28. Moreover, as with claim 1, Brockenbrough does not disclose a hinge as in claim 29.

Applicants respectfully request that this error in fact by the Examiner be reversed by the Board.

Because the references do not disclose each element of the claims, the Examiner has failed to present a prima facie case of obviousness. Applicants request that the Examiner's rejection of these claims be reversed.

### Differing Compositions

Also still at issue is whether Brockenbrough and Welygan combine to render claims 9, 17 and 23 obvious.

In particular, claims 9, 17 and 23 relate to two plastic layers in which the surface features are nested within one another and the two layers of plastic have different compositions. Claim 9, which ultimately depends from claim 1, has the further element of hinge as discussed above. Claim 17 further includes the element of extruded plastic layers.

The Examiner acknowledges that Brockenbrough does not disclose the use of an extruded plastic layer. While Welygan discloses the use of an extruded plastic, it does not disclose the use of multiple layers of extruded plastic, contrary to the assertion of the Examiner. (Examiner's Answer, page 6, fifth paragraph). The Examiner identified Fig. 7 of Welygan as disclosing multiple layers of extruded plastic. However, Fig. 7 shows only a single base element with several rib elements on the base element. Thus, the Examiner's characterization of Welygan is inaccurate. Because Welygan does not disclose multiple layers of plastics, it cannot disclose using multiple layers with the layers having different compositions.

The Examiner states that the motivation to modify Brockenbrough may be found in Brockenbrough itself. The Examiner asserts that the disclosure of the use of different materials would motivate a skilled artisan to substitute metal with plastic: "i.e., one strip



being plastic and one being metal". (Examiner's Answer, page 6, sixth paragraph). However, even if there was such a motivation to make the modification, that modification would not arrive at the claimed invention. Claims 9, 17 and 23 all relate to two plastic layers, not a combination of metal and plastic layers. If anything, the Examiner has found a motivation to modify Brockenbrough to arrive at something that is not claimed. Consequently, the Examiner has not provided a motivation to modify Brockenbrough to arrive at the claimed invention.

Rather the modification that is necessary to arrive at the present claims is the complete substitution of plastic for metal where the plastic layers have different compositions. However, the Examiner has not identified a motivation to modify Brockenbrough to make this substitution. Moreover, the only material mentioned by Brockenbrough as suitable for use in his device is strips of metal. Brockenbrough never contemplates that any material beside metal may be used. While Brockenbrough is clear about attempting to reduce the weight of energy absorbers, nothing in Brockenbrough suggests that plastic of any kind would have the necessary physical characteristics to be a substitute for metal nor does Brockenbrough suggest that different layers of plastics could be a substitute for metal.

Indeed, the absence of any discussion of the use of plastic should be deemed as a knowing rejection of plastic as a suitable material. Brockenbrough was originally filed in January, 1988, while other patents regarding plastic energy absorbers were issued because Brockenbrough filed his application (e.g. U.S. Patent No. 4,264,094 to White, et al. issued April 28, 1981). Since, these patents would have been available to Brockenbrough during the preparation of his disclosure and inventors are assumed to be skilled artisans, it follows that Brockenbrough knew about these patents and disregarded their disclosure. And Brockenbrough disregarded the art of plastic energy absorbers when making his device. Thus, it would be inappropriate to assert that Brockenbrough was the source of the motivation to substitute plastic for metal when Brockenbrough clearly did not consider plastic to be suitable for his device. Moreover, for the same reason, it would be inappropriate to assert that Brockenbrough was the source of the motivation to substitute different kinds of plastics for metal. For these reasons, Brockenbrough is not the source of the motivation to substitute plastic for metal or to substitute different kinds of plastics for metal.

Likewise, Welygan is not the source of the motivation to substitute plastic for metal. Welygan is primarily directed to methods of making extruded plastic articles with little substantive disclosure regarding the use of the articles for a particular purpose. Welygan only mentions in passing that his articles may be used as energy absorbers. There is no disclosure regarding why these articles may be suitable as energy absorbers or why a particular material was selected. Welygan never discusses metals, much less discusses metals as a suitable material for use in his methods. From this, it is apparent that Welygan is not the source of motivation to modify Brockenbrough to achieve the presently claimed invention. As noted above, Welygan does not disclose the use of multiple layers and thus there is no motivation to use multiple layers with different compositions.

Because the Examiner has failed to identify motivation to combine the references, the Examiner has failed to present a prima facie case of obviousness. Applicants request that the Examiner's rejection of these claims be reversed.

### Use of Friction

Further at issue is whether Brockenbrough and/or Welygan disclose the use of friction to dissipate impact energy.

In particular, claims 7, 15 and 21 relate to the use of friction in a multilayer energy absorber that has surface features with different structural aspects nests within one another.

Contrary to the assertion of the Examiner, Brockenbrough does not disclose the use of friction to dissipate energy. The Examiner states: "the varying height of the corrugation of layers 14 and 16 would be pushed toward one another and contact one another, thus resulting in frictional engagement between the two." However, the Examiner's bare conclusion is insufficient. Brockenbrough never mentions friction and the Examiner identifies nothing in the disclosure that could be construed as teaching or suggesting the use of friction to dissipate energy. On the contrary, Brockenbrough discloses the use of adhesives in the troughs between the surface features which would prevent the surface features from frictionally engaging one another. The Examiner's attention is drawn to Fig. 2 and reference numeral 48, which is identified as "hot melt modified acrylic epoxy at spaced locations 48 on each strip prior to its assembly into the energy absorption device. (Column 4, lines 65-67). This use of adhesive would prevent the metal strips from moving relative to one another during impact, meaning the frictional dissipation of energy would be negligible or nonexistent. Even if the strips of Brockenbrough slip against one another, that does not constitute in frictional energy dissipation during an impact as is presently claimed because it would be so negligible as to not dissipate energy.

Moreover, the Examiner does not identify where in Welygan friction is used to dissipate energy. Indeed, because Welygan does not disclose the use of multilayer devices (as discussed above), Welygan cannot disclose the use of friction in impact energy dissipation.

Because the Examiner has not identified where friction is disclosed in either Brockenbrough or Welygan, the Examiner has not made a prima facie case of obviousness. Applicants request that the Examiner's rejection of these claims be reversed.

### Conclusion

In view of Applicants' remarks, the Examiner's rejections are believed to contain reversible error. Accordingly, Applicants submit that the present application contains allowable subject matter and is in condition for allowance. Should the Appeal Board or the Examiner have any question or wish to further discuss this application, Applicants request that the undersigned be contacted at (248) 292-2920.

If for some reason Applicants have not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent the abandonment of this application, please consider this as a request for an extension for the required time period and/or authorization to charge Deposit Account No. 04-1512 for any fee which may be due.

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## **Claims Appendix**

1. An article of manufacture, comprising:  
an energy absorber comprising an extruded plastic first layer having a first plurality of corrugations separated by a hinge from a second plurality of corrugations, wherein the length of the corrugations are longer than their widest cross-sectional width.
2. (Canceled)
3. The article of claim 1, wherein individual corrugations of the first plurality are nested within individual corrugations of the second plurality after actuation of the hinge.
4. The article of claim 3, wherein the first and second pluralities of corrugations differ from each other in at least one structural or compositional aspect.
5. The article of claim 4, wherein the at least one structural aspect is selected from height, base width, floor width, average width, cross-sectional shape, base layer thickness, wall thickness, floor thickness and combinations thereof.
6. The article of claim 5, wherein cross-sectional shape is selected from square waveform, positive draft, negative draft, sinusoidal waveform, open loop shape, closed loop shape and combinations thereof.
7. The article of claim 5, wherein the differing structural aspect results in frictional energy dissipating during an impact.
8. The article of claim 7, wherein the differing structural aspect is depth.
9. The article of claim 4, wherein the first and second pluralities differ in composition.

10. An article of manufacture, comprising:  
an energy absorber comprising an extruded plastic first layer having a first plurality of corrugations and an extruded plastic second layer having a second plurality of corrugations and wherein individual corrugations of the first plurality are nested within individual corrugations of the second plurality and wherein the first and second layers differ from each other in at least one structural or compositional aspect.
11. (Cancelled)
12. (Cancelled)
13. The article of claim 10, wherein the at least one structural aspect is selected from height, base width, floor width, average width, cross-sectional shape, base layer thickness, wall thickness, floor thickness and combinations thereof.
14. The article of claim 13, wherein cross-sectional shape is selected from square waveform, positive draft, negative draft, sinusoidal waveform, open loop shape, closed loop shape and combinations thereof.
15. The article of claim 13, wherein the differing structural aspect results in frictional energy dissipating during an impact.
16. The article of claim 15, wherein the differing structural aspect is depth.
17. The article of claim 12, wherein the first and second layers differ in composition.
18. An energy absorbing structure, comprising:  
a energy absorber comprising a first plastic layer having a first plurality of surface features and a second plastic layer with a second plurality of surface features wherein the surface features of one layer are nested within the surface features of the other

layer and wherein the first and second layers differ from each other in at least one structural or compositional aspect.

19. The article of claim 18, wherein the at least one structural aspect is selected from height, base width, floor width, average width, cross-sectional shape, base layer thickness, wall thickness, floor thickness and combinations thereof.

20. The article of claim 19, wherein cross-sectional shape is selected from square waveform, positive draft, negative draft, sinusoidal waveform, open loop shape, closed loop shape and combinations thereof.

21. The article of claim 19, wherein the differing structural aspect results in frictional energy dissipating during an impact.

22. The article of claim 21, wherein the differing structural aspect is depth.

23. The article of claim 18, wherein the first and second layers differ in composition.

24. A method of manufacturing an energy absorber, comprising:  
nesting individual surface features of a first plurality of surface features on a first plastic layer into individual surface features of a second plurality of surface features on a second plastic layer, wherein the first and second layers differ from each other in at least one structural or compositional aspect.

25. The method of claim 24, further comprising extruding a first layer comprising the first plurality of surface features.

26. The method of claim 25, further comprising extruding a second layer comprising the second plurality of surface features.

27. The method of claim 24, further comprising extruding a first layer comprising the first and second plurality of surface features.

28. The method of claim 27, wherein the nesting step comprises actuating a hinge that separates the first plurality and second plurality of surface features.

29. A method of manufacturing an energy absorber, comprising:  
extruding a first layer comprising a first and a second plurality of surface features, wherein the first and second plurality of surface features are separated by a hinge.

30. (Cancelled)

31. (Cancelled)

32. The method of claim 29, further comprising nesting individual surface features of the first plurality of surface features into individual surface features of the second plurality of surface features.

33. The method of claim 32, wherein the first and second plurality of surface features are formed with at least one differing structural or compositional aspect.